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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,764	02/06/2002	Sang Shin Lee	K-0392	5817

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EXAMINER
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WANG, GEORGE Y

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 05/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/066,764

Applicant(s)

LEE ET AL.

Examiner

George Y. Wang

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
2. The abstract of the disclosure is objected to because it is too long. The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daneman et al. (U.S. Patent No. 6,330,102, from hereinafter "Daneman") in view of Magel et al. (U.S. Patent No. 5,155,778, from hereinafter "Magel").

5. As to claim 1, Daneman discloses an optical switch (fig. 2) having an optical fiber input part in a predetermined region, an optical fiber output part in a predetermined region at a distance from the optical fiber input part to face each other, a first micro-mirror part between the input and output parts for reflection a light from the optical fiber input part, and a second micro-mirror part between the input and output parts, at a distance from the first micro-mirror part to have each other for reflection the light from the first micro-mirror part to the optical fiber output part. However, the reference fails to specifically disclose a substrate.

Magel discloses an optical switch with optical elements, such as fibers, mirrors, and lenses, situated an fixed on a substrate (fig. 1, ref. 10).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have fixed the elements discloses by Daneman on a substrate as in Magel since one would be motivated to provide a structure for optical

interconnections (col. 2, lines 1-2). This type of integration forms precise interconnections as well as minimizes wasted space, which ultimately is useful in reducing cost and facilitating manufacture (col. 1, lines 39-64).

6. Regarding claims 2-4, Daneman discloses the optical switch as recited above. However, the reference fails to specifically disclose a substrate with grooves for fixing the input, output, and mirror parts with epoxy. Furthermore, the reference fails to disclose grooves with upper sloped sides and lower vertical sides to form a "Y" groove.

Magel discloses an optical switch with optical elements, such as fibers, mirrors, and lenses, situated and fixed on a substrate (fig. 1, ref. 10) and affixed by epoxy (col. 6, lines 50-51) within grooves (fig. 1, ref. 12, 15).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have fixed the input, output, and mirror parts with epoxy within grooves of a substrate since one would be motivated ultimately to provide a structure for optical interconnections (col. 2, lines 1-2). This type of integration forms precise interconnections as well as minimizes wasted space, which ultimately is useful in reducing cost and facilitating manufacture (col. 1, lines 39-64). In addition, using epoxy, which is well-known in the art, within Y-shaped grooves, which Magel describes as "properly dimensioned grooves" (col. 2, lines 60-62) would be recognized by one of ordinary skill in the art to provide enhanced security and positioning of the fibers and mirrors.

7. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daneman and Magel in view of Peale et al. (U.S. Patent No. 6,480,645, from hereinafter "Peale").

Daneman and Magel discloses an optical switch as recited above with the input and output parts parallel to each other and facing the mirrors at 45 degrees. However, the reference fails to disclose a second substrate at the face of the plurality of input and output fiber parts.

Peale discloses an optical switch with a substrate at the face of the plurality of input and output fiber parts (fig. 2, ref. 30, 35).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included a second substrate since one would be motivated to include other optical elements (fig. 2, ref. 32) for enhancing beam steering and control, focusing, and alignment (abstract; col. 2, lines 1-29). Such elements include collimators and lens arrays, which are all well-known in the art.

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Y. Wang whose telephone number is 703-305-7242. The examiner can normally be reached on M-F, 8 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 703-305-3492. The fax phone numbers


Application/Control Number: 10/066,764  
Art Unit: 2882

Page 6

for the organization where this application or proceeding is assigned are 703-308-7722  
for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or  
proceeding should be directed to the receptionist whose telephone number is 703-308-  
0956.

GW  
gw  
April 24, 2003

  
DAVID V. BRUCE  
PRIMARY EXAMINER